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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/828,271	04/05/2001	Vijayan Rajan	103.1063.01	6350

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EXAMINER	
VO, LILIAN	

ART UNIT	PAPER NUMBER
2127	

DATE MAILED: 02/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/828,271	RAJAN ET AL.	
	Examiner	Art Unit	
	Lilian Vo	2127	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 October 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 - 24 and 26 - 29* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 - 24 and 26 - 29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1 – 24 and 26 - 29 are pending.

Claim Rejections - 35 USC § 101

2. Claims 1 – 11, 17 – 22, 24 and 26 – 29 are rejected under 35 U.S.C. 101 because they are directed to non-statutory subject matter.

3. **Claims 1 –11** are directed to method steps, which can be practiced mentally in conjunction with pen and paper, therefore they are directed to non-statutory subject matter. Specifically, as claimed, it is uncertain what performs each of the claimed method steps. Moreover, each of the claimed steps, inter alia, selecting, prohibiting, changing, running, altering, providing, can be practiced mentally in conjunctions with pen and paper. The claimed steps do not define a machine or computer implemented process [see MPEP 2106]. Therefore, the claimed invention is directed to non-statutory subject matter. (The examiner suggests applicant to change "method" to "computer implemented method" in the preamble to overcome the outstanding 35 U.S.C. 101 rejection).

4. **Claims 17 – 22, 24 and 26 – 29** are directed to non-statutory subject matter and is rejected under 35 U.S.C. 101 because it is not tangibly embodied in a manner so as to be executable and the system itself is not including any hardware, thus lacking utility.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1 – 9, 11 – 15, 17 – 21 and 23 - 28 are rejected under 35 U.S.C. 102(b) as being anticipated by Frank et al. (US 5,790,851, hereinafter Frank).

7. Regarding **claim 1**, Frank discloses a method including:

selecting tasks from a set thereof for running on a plurality of processors, each processor having access to a shared resource (col. 6, lines 4 – 29, 44 - 48);

wherein each task of the set of tasks is associated with one of a plurality of scheduling domains, at least one scheduling domain being associated with at least two tasks of the set of tasks (col. 6, lines 4 – 29, 44 – 48, 57 – 62, figs. 2B and 2C); and

prohibiting more than one task associated with the same scheduling domain from running concurrently (col. 8, lines 15 – 29, 43 – col. 9, lines 11 and figs. 5, 6A and 6B).

8. Regarding **claim 2**, Frank discloses a method of claim 1, including changing said association for at least one task from a first to a second scheduling domain (col. 6, lines 4 – 14, and 43 – 62).

9. Regarding **claim 3**, Frank discloses a method of claim 1, including selecting for running at least one task associated with a plurality of said scheduling domains (col. 6, lines 4 – 29, 44 – 48, 57 – 62, col. 8, lines 15 – 29, 43 – col. 9, lines 11, figs 8).

10. Regarding **claim 4**, Frank discloses a method of claim 1, including selecting for running at least one task not associated with any one of said scheduling domains (col. 6, lines 57 – 62, col. 12, lines 4 – 15, col. 13, lines 11 - 16).

11. Regarding **claim 5**, Frank discloses a method including altering a program code base, said program code base defining a plurality of tasks and a set of data structures at least some of which are shared, to include implicit synchronization among said tasks to said data structures (col. 6, lines 4 – 29, 44 – 48, 57 – 62, col. 8, lines 15 – 29, 43 – col. 9, lines 11).

12. **Claims 6 – 9, 11 – 15, 17 - 21 and 23 - 28** are rejected on the same ground as stated in claims 1 – 5 above.

13. Claims 5 and 23 are rejected under 35 U.S.C. 102(e) as being anticipated by Rehg et al. (US Pat. Application Publication 2002/0091748, hereinafter Rehg).

14. Regarding **claim 5**, Rehg discloses a method including altering a program code base, said program code base defining a plurality of tasks and a set of data structures at least some of which are shared, to include implicit synchronization among said tasks to said data structures (page 3, paragraph 0050, page 4, paragraphs 0052 – 0053).

15. Regarding **claim 23**, Rehg discloses a process comprising performing implicit synchronization of a plurality of tasks in a multiprocessor system (page 4, paragraph 0053).

Claim Rejections - 35 USC § 103

16. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

17. Claims 10, 16, 22 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Frank et al. (US 5,790,851, hereinafter Frank) in view of Zolnowsky (US 5,826,081).

18. Regarding **claim 10**, Frank discloses of reservation queue and also a task queue within a task (col. 10, lines 9 – 12, 52 – 63). Frank however did not clearly disclose that there is a runnable queue for each scheduling domain. Nevertheless, Zolnowsky discloses a system with a

plurality of runnable queues, each is associated with a processor (col. 5, lines 26 – 37, col. 7, l lines 50 – 59, fig. 5).

It would have been obvious for one of an ordinary skill in the art, at the time the invention was made to incorporate Zolnowsky's teaching to Frank to implement with a plurality of runnable queues to prevent race conditions and minimize lock contention with a single runnable queue while assuring that processes are executed as quickly as possible among the plurality of runnable queues.

19. **Claims 16, 22 and 29** are rejected on the same ground as stated in claim 10 above.

Response to Arguments

20. Applicant's arguments filed 10/4/05 have been fully considered but they are not persuasive for the reasons set forth below.

21. With respect to the concept of the scheduling domain, the examiner interprets it as the shared resource that can be scheduled to have only one task/process to access/execute at any given time. Therefore, the examiner disagrees with applicant's remark that Frank does not teach the use of scheduling domains whereby only one task associated with the scheduling domain can run at the same time (page 13, 4th paragraph). Frank clearly discloses or suggests the limitation because there is only one process/task is allowed to access the shared resource at any given time.

Furthermore, applicant defines the scheduling domain as a set of tasks and resources selected by designers or program coders for operation in a multiprocessor system in which only

one task in the set is allowed to run and access the resources at the same time which is similar to the examiner's interpretation.

22. In response to applicant's arguments (page14, 6th paragraph and page 15, 1st paragraph) that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., implicit synchronization which is similar or identical to prohibiting more than one task from running in the same domain) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Conclusion

23. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

24. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lilian Vo whose telephone number is 571-272-3774. The examiner can normally be reached on Monday - Thursday, 7:30am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An can be reached on 571-272-3756. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Lilian Vo
Examiner
Art Unit 2127

lv
February 16, 2005

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